Laboratory Advances Northern Hardwoods Research

Research has made substantial progress in accumulating sound forest management practices for the northern hardwood type. But there is much still to be learned and some of the problems are extremely complicated. The Northern Hardwoods Laboratory, with its modern research facilities, should do much to expedite results. The Laboratory has 6 studies, 4 laboratories, and a library and conference room to serve the needs of a planned staff of 15 research scientists.

There are more than 8,000,000 acres of northern hardwood forest in Michigan, Wisconsin, and Minnesota. This forest sustains a large hardwood lumber industry. Also, it supplies high-grade logs for veneer mills and an increasing volume of wood for pulpmills and other miscellaneous wood using plants. In addition, it has immeasurable aesthetic and recreational values.

The sturdy maples, towering basswood, and bronze birches occupy most of the better forest sites, with elm, ash, hemlock, and white pine in various mixtures. Other species included are spruce, fir, and cedar. Much of the hardwood forest is a haven for a wide variety of wildlife.

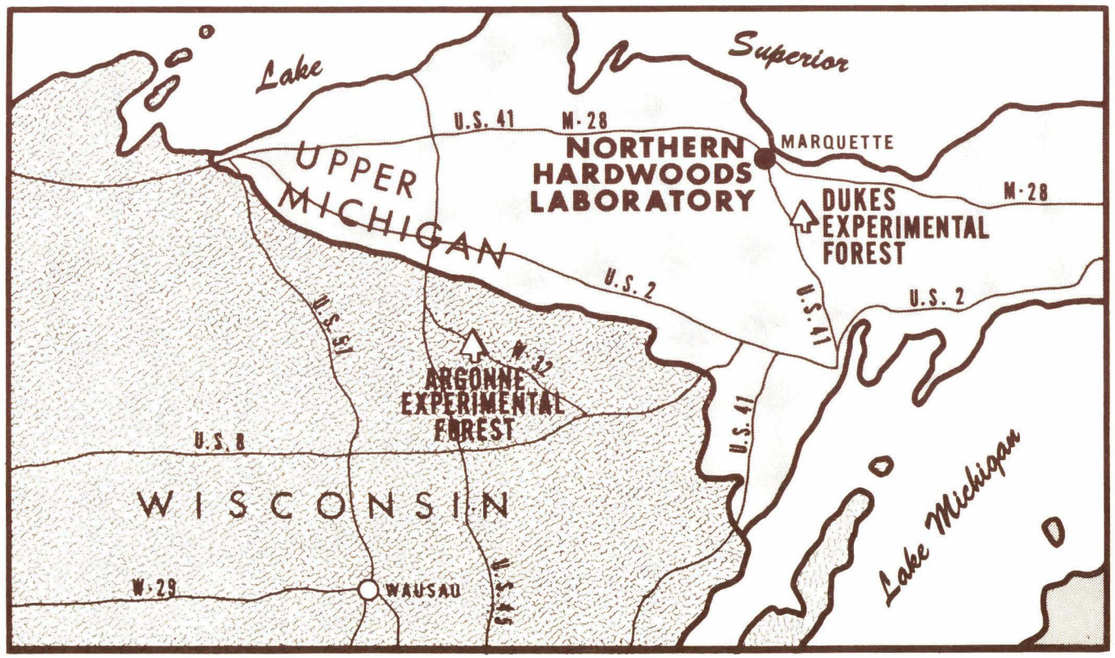
Many people travel hundreds of miles to see the brilliant reds and yellows of the leaves after the first fall frosts. Today, mature timber stands occupy only a fraction of the area that they once covered. Most of the northern hardwood type is now in second-growth stands. To bring these stands under continuous production of high-quality wood requires good forestry practices. In some cases, the wrong species occupy good sites. These should be replaced by more valuable hardwoods. Sometimes this is a difficult problem. Yellow birch, for example, does not reproduce as abundantly as is desirable.

Where good stands are well established, the problem becomes one of quality. How do we protect our trees from rot, stain, or death due to fungi? How do we provide good habitat for deer without sacrificing high-value reproduction? How do we select and favor the straightest, healthiest, most rapidly growing trees?

All of the Lake States Forest Experiment Station's northern hardwoods research is directed from the Northern Hardwoods Laboratory.

Field work is conducted in the Dukes Experimental Forest in Upper Michigan and the Argonne Experimental Forest in northern Wisconsin.

The Experiment Station is a unit of the Forest Service, U. S. Department of Agriculture. The Station, with headquarters in St. Paul, Minn., has field headquarters and experimental forests in Michigan, Wisconsin, Minnesota, and North Dakota.



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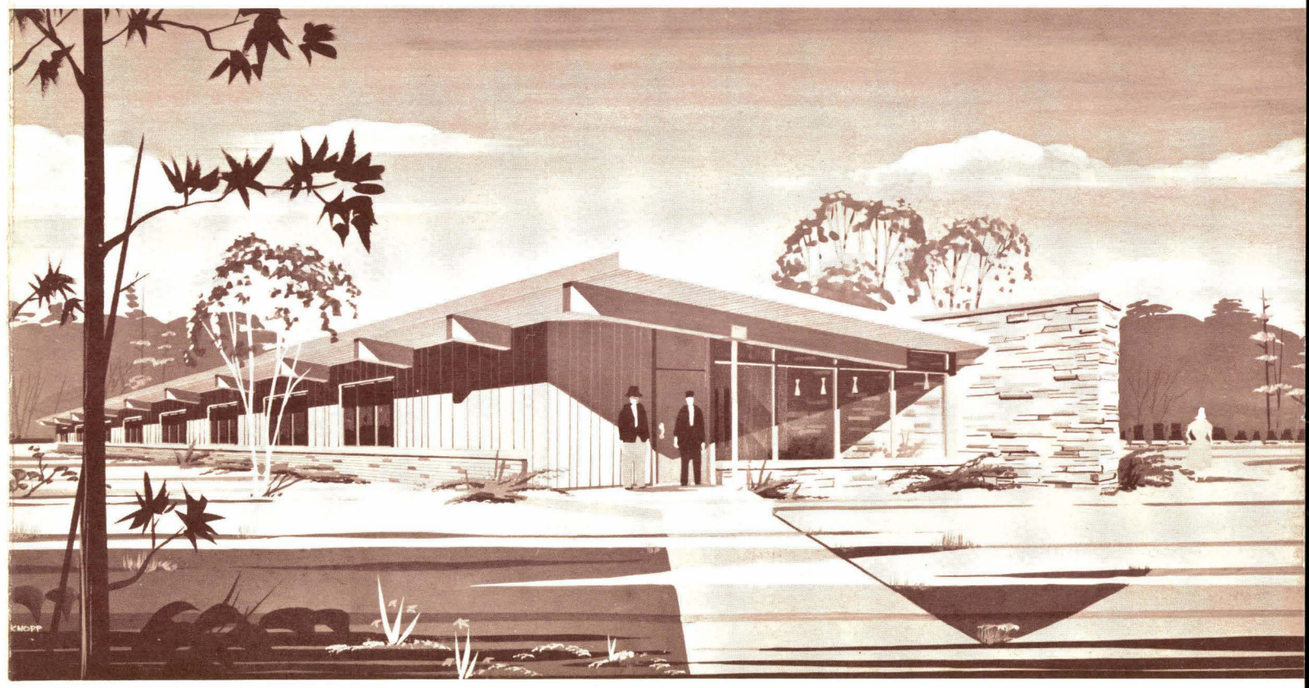
LAKE STATES FOREST EXPERIMENT STATION

Northern Hardwoods Laboratory

Marquette, Michigan



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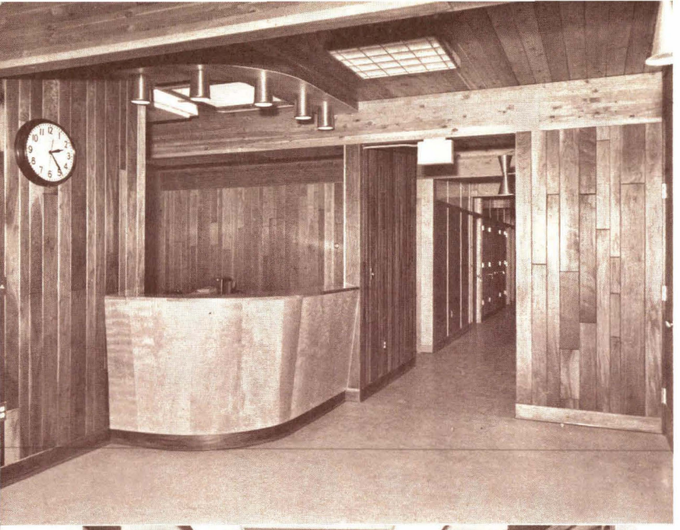
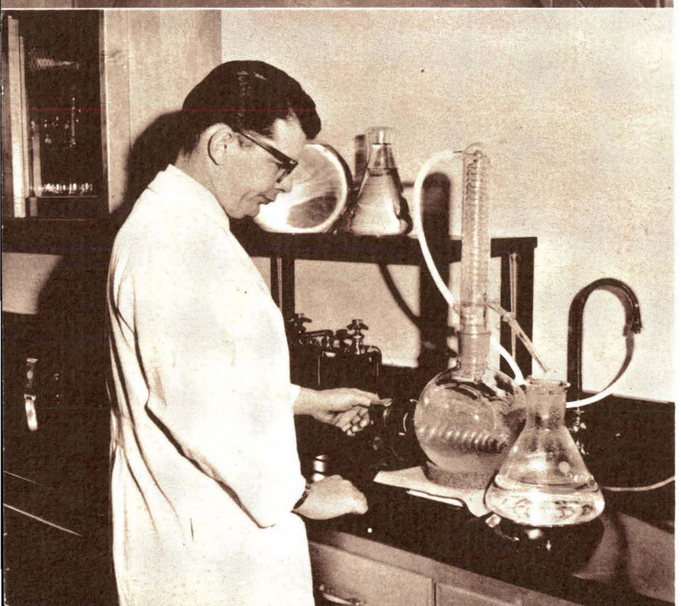


The interior of the Northern Hardwoods Laboratory demonstrates a diverse use of wood for paneling, laminated beams, counters, and trim. Eight native Lake States species were selected for wall paneling. Labels on the panels identify the various species for interested visitors.

Modern laboratory facilities enable Lake States Station scientists to conduct basic research in the Northern Hardwoods Laboratory. They deal with fundamental problems in disease, physiology, soils, and plant ecology and they permit Lake States scientists to proceed more rapidly in their quest for new information on the management and protection of northern hardwoods.



A plant pathologist, well trained in his particular field, makes use of modern laboratory equipment. He and his colleagues conduct studies on basic pathological problems in the laboratory. Subsequently, the results are tested and applied on experimental forest areas. Results of such research are published in scientific journals and other outlets.

Forest management research deals with all phases of the growth of a timber stand. At right, sugar maple stump sprouts threaten to take over an opening left by an experimental clear cut. In this situation, sprouts are more vigorous than seedlings, but the seedlings produce better quality trees.

As trees develop their quality can be influenced by a large number of factors. This second-growth stand is on one of many sample plots that are periodically remeasured by Lake States Station personnel. These experimental areas are used to determine best forest management practices.

Forest pathologists at the Laboratory are presently working on three types of disease problems—decays, stains, and die-back. Pictured at right is an experiment conducted as a part of the maple blight program. The blight was apparently caused by insect defoliation followed by fall frost damage to the reflush of growth.